Alberta

Traffic Collision Statistics

2009

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2009 Overview

- The number of **traffic fatalities decreased 14.4%** over the past year from 410 fatalities in 2008 to 351 in 2009.
- The number of **traffic injuries decreased 12.9%** over the past year from 22015 injuries in 2008 to 19167 in 2009.
- The number of **traffic collisions decreased 0.5%** over the past year from 158055 collisions in 2008 to 157226 in 2009.
- **The highest number of fatal collisions** occurred in **July. The highest number of injury collisions** occurred in **September**.
- **Friday** was the most collision-prone day of the week.
- **The most collision-prone period of time was the afternoon rush-hour**.
- **Casualty rates** were highest for persons between the **ages of 15 and 24**.
- **Male drivers** between the **ages of 18 and 19** had the highest involvement rate of all drivers involved in casualty collisions.
- **Following too closely, running off the road and left turn across path** were the most frequently identified **improper driver actions** contributing to casualty collisions.
- **Fatal collisions** occurred most frequently in **rural areas**, whereas **injury and property damage collisions** occurred more frequently in **urban areas**.
- **37.5% of pedestrians** involved in **fatal collisions had consumed alcohol** prior to the collision compared to **13.0% of pedestrians in injury collisions**.
- **21.1% of drivers** involved in **fatal collisions had consumed alcohol** prior to the crash compared to **5.0% of drivers in injury collisions**.
- **Collision involved restraint users had a much lower injury rate** (7.0%) than those not using restraints (31.7%)

Preface

The purpose of this report is to provide an overview of the "who", "what", "when", "where", "why", and "how" of traffic collisions which occurred in Alberta during 2009. Although the report is general in nature, it pays particular attention to casualty collisions, that is, those collisions which result in death or injury. Legislation in Alberta requires that a traffic collision, which results in either death, injury or property damage to an apparent extent of $1000.00 or more, be reported immediately to an authorized peace officer. The officer completes a standardized collision report form which provides information on various aspects of the traffic collision. This report is based on the data collected from these report forms.

The collision report form is issued with standard instructions to every police service within Alberta, to be completed by the officer attending the scene of a motor vehicle collision or at a police station. Police priorities at the scene of a collision are to care for the injured, protect the motoring public and clear the roadway. Completion of the collision report form is a secondary, but necessary task.

After completion, the information on the collision report form is coded for input to computer files. The Alberta Collision Information System, which has been operational since 1978, undergoes several manual and computerized inspections each year in order to ensure maximum accuracy of the final data output. This collision information is used to make Alberta's roads safer for all road users. Due to continuing police investigation, some numbers presented in this report may be subject to revision. It should also be noted that not all percentage columns will total 100 due to rounding error.

This report was produced based on collisions reported to Alberta Transportation by police, at the time of printing. The numbers presented in this report will not be updated. However, the patterns and trends detailed in this report represent an accurate description of Alberta's traffic collision picture.

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Glossary

Alcohol Impaired – In the judgement of the police officer, driving ability was impaired by alcohol consumption. Whether or not the subject was actually charged is not taken into consideration by the collision report form.

Casualty Collision – A vehicle collision which results in either a fatal or personal injury.

Drinking Driver – Refers to those drivers judged by the police officer as having been drinking prior to the collision or as being alcohol impaired at the time of the collision. Whether or not the driver was actually charged is not taken into consideration by the collision report form.

Fatality – A fatality is the death of a person that occurs as a result of a motor vehicle collision within 30 days of the collision.

Had Been Drinking – In the judgement of the police officer, the driver had recently consumed alcohol but his driving ability was not obviously impaired.

Major Injury – Persons with injuries or complaint of pain that went to the hospital and were subsequently admitted even if for observation only.

Minor Injury – Persons with injuries or complaint of pain that went to the hospital, were treated in emergency (or refused treatment) and SENT HOME without ever being admitted to the hospital. (Also includes people who indicated that they intended to seek medical treatment).

Motorcyclist – Refers to drivers and passengers of motorcycles.

Occupant Casualties – Refers to people who were injured or killed as a result of a vehicle collision and were identified as being either a vehicle driver or passenger.

Property Damage – A vehicle collision which resulted in property damage exceeding $1000.00.

Reportable Collision – A vehicle collision which resulted in death, injury or property damage greater than $1000.00.

Rural – Any area outside of what is defined as "**Urban**".

Urban – Any area within the corporate boundaries of a city, town, village or hamlet.

2009 Traffic Collision Summary

Introduction

During 2009, 157226 collisions were recorded on Alberta roadways. Property damage collisions (over $1000) represented 90.7% (142678) of this total while 9.1% (14246) were non-fatal injury collisions. Fatal collisions accounted for 0.2% (302) of the total reported collisions.

Five Year Trends

In terms of population, licensed drivers and registered vehicles the fatal collision rate and fatality rate have decreased from 2008.

The non-fatal injury collision and injury rates have also decreased in 2009 in terms of population, licensed drivers, and registered vehicles.

Property damage collision rates decreased in 2009 in terms of population, licensed drivers and registered vehicles.

From 2008 to 2009, Alberta's fatality rate per billion vehicle kilometers travelled decreased from 8.6 to 7.1. During the same period, the injury rate per billion vehicle kilometers travelled decreased from 464.2 to 385.6. Over the last five years, since 2005, rates have declined by 3.5 fatalities and 169.5 injuries per billion vehicle kilometers travelled.

Provincial Comparisons

In order to get a picture of Alberta's traffic casualties in comparison to other provinces, rates rather than absolute numbers are utilized. In this instance casualty rates per billion vehicle kilometres travelled were examined.

Figures for 2009 and 2008 provincial comparisons were not available at the time of printing; therefore, figures for 2007 were used. Based on this comparison of rates per billion vehicle kilometres travelled, five provinces and territories had a higher fatality rate than Alberta in 2007. With regard to injury rates, in 2007, seven jurisdictions had a higher injury rate than Alberta.

Table 1.1

Alberta Traffic Collisions

2005 – 2009

Severity of Collisions	**2009**	**2008**	**2007**	**2006**	**2005**
Fatal Collisions	302	375	402	404	392
Non-Fatal Injury Collisions	14246	16153	17857	18831	17726
Property Damage Collisions	142678	141527	135642	123357	106088
Total Reportable Collisions	**157226**	**158055**	**153901**	**142592**	**124206**
Number Killed	351	410	458	453	466
Number Injured	19167	22015	24530	25964	24504
Total Number of Casualties	**19518**	**22425**	**24988**	**26417**	**24970**

Observations

In 2009, the overall number of collisions decreased 0.5% when compared to 2008. In 2009, injury collisions decreased by 11.8% and fatal crashes decreased by 19.5%. The number of fatalities decreased by 14.4% from 2008 to 2009 and the number of injuries decreased by 12.9%. In terms of the past five years, overall collisions were lowest in 2005 and highest in 2008.

Table 1.2

Traffic Collision Rates

2005 – 2009

Severity of Collision	Rate Per 10,000 Population*					Rate Per 10,000 Licensed Drivers					Rate Per 10,000 Registered Vehicles				
	2009	**2008**	**2007**	**2006**	**2005**	**2009**	**2008**	**2007**	**2006**	**2005**	**2009**	**2008**	**2007**	**2006**	**2005**
Fatal Collisions	0.8	1.0	1.1	1.2	1.2	1.1	1.4	1.5	1.6	1.6	1.0	1.2	1.4	1.5	1.5
Number Killed	1.0	1.1	1.3	1.3	1.4	1.3	1.5	1.8	1.8	1.9	1.1	1.4	1.6	1.6	1.8
Non-Fatal Injury Collisions	38.6	44.9	50.8	55.0	53.4	52.2	60.5	68.6	74.5	72.6	46.5	53.3	61.1	68.0	68.2
Number Injured	52.0	61.2	69.8	75.9	73.8	70.2	82.4	94.3	102.8	100.3	62.6	72.7	83.9	93.8	94.3
Property Damage Collisions	386.9	393.6	386.1	360.6	319.3	522.3	529.8	521.4	488.3	434.4	466.1	467.1	464.2	445.4	408.1
Total Reportable Collisions	**426.4**	**439.5**	**438.1**	**416.8**	**373.9**	**575.6**	**591.7**	**591.5**	**564.4**	**508.6**	**513.6**	**521.6**	**526.7**	**514.9**	**477.8**

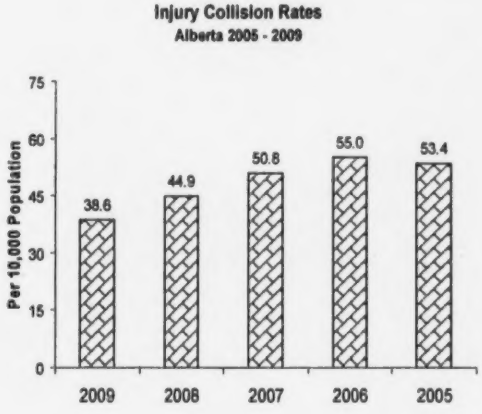
Observations

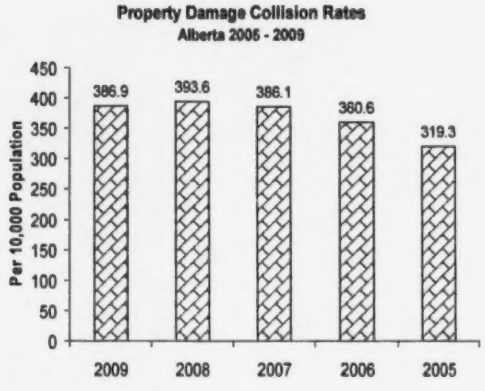
In terms of population, licensed drivers and registered vehicles, collision and casualty rates decreased from 2008 to 2009.

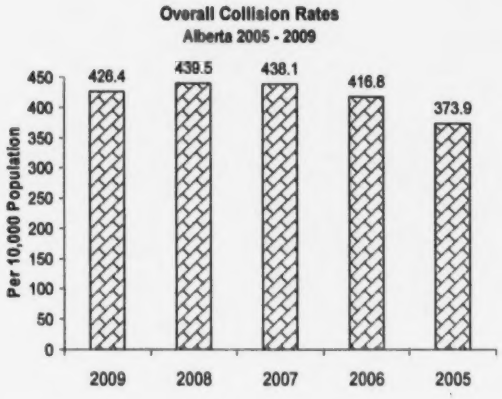
*In 2008, Statistics Canada updated the Alberta population estimates for 2004 - 2007 to align with the 2006 Standard Geographical Classification (SGC). As a result, collision rates for 2004 - 2007 in this report are based on the updated population estimates and may differ from previous publications in this series. In 2009, Statistics Canada further refined the 2008 and 2007 population numbers.

Sources:
Population – Statistics Canada as of July 1, 2009
Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2009
Registered Vehicles – Service Alberta – Registries Services, as of December 31, 2009

Figure 1







Note: In 2008, Statistics Canada updated the Alberta population estimates for 2004 - 2007 to align with the 2006 Standard Geographical Classification (SGC). As a result, collision rates for 2004 - 2007 in this report are based on the updated population estimates and may differ from previous publications in this series. In 2009, Statistics Canada further refined the 2008 and 2007 population numbers.

Table 1.3

Provincial Comparison of Casualty Rates
Per Billion Vehicle Kilometres Travelled*

2005 – 2009

	Fatalities					Injuries				
	2009	2008	2007	2006	2005	2009	2008	2007	2006	2005
Canada	--	--	8.3	8.9	9.3	--	--	584.4	604.0	668.0
Alberta	7.1	8.6	9.6	10.0	10.6	385.6	464.2	513.2	570.7	555.1
British Columbia	--	--	11.6	12.9	13.9	--	--	725.5	789.5	873.3
Saskatchewan	--	--	10.6	12.2	13.2	--	--	509.0	604.4	612.8
Manitoba	--	--	7.9	9.9	10.3	--	--	617.1	729.1	788.4
Ontario	--	--	6.2	6.0	6.3	--	--	534.8	525.2	571.5
Quebec	--	--	8.8	10.3	10.6	--	--	678.6	711.1	871.2
New Brunswick	--	--	11.0	12.3	13.6	--	--	459.5	452.3	508.5
Nova Scotia	--	--	9.3	8.4	7.1	--	--	577.9	470.8	487.7
Prince Edward Island	--	--	5.6	25.0	11.3	--	--	565.6	803.6	565.7
Newfoundland	--	--	9.4	8.5	9.8	--	--	519.0	501.3	537.1
Yukon	--	--	10.3	24.2	12.3	--	--	427.0	434.5	396.4
Northwest Territories	--	--	13.9	5.3	5.4	--	--	435.0	294.3	505.7
Nunavut	--	--	0.0	N/A	N/A	--	--	461.5	N/A	N/A

Observations

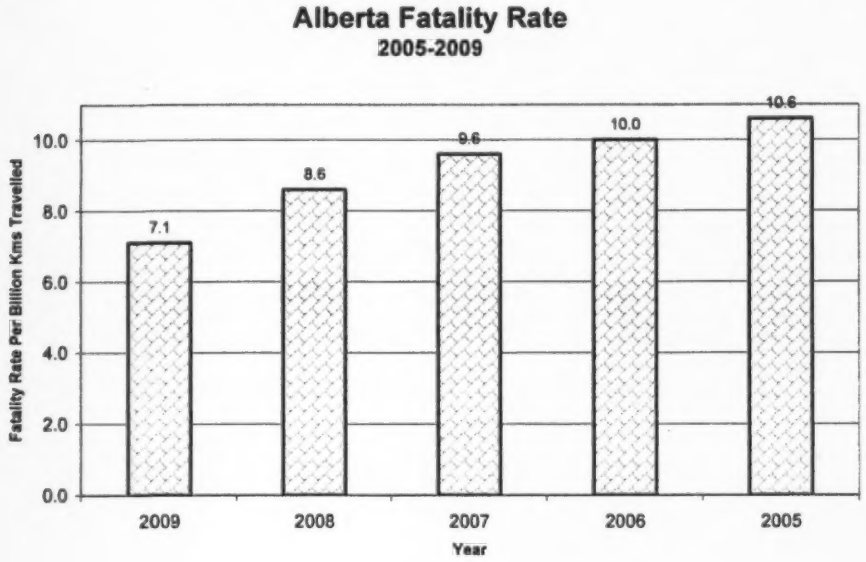
From 2008 to 2009, Alberta's fatality rate per billion vehicle kilometers travelled decreased from 8.6 to 7.1. During the same period, the injury rate per billion vehicle kilometers travelled decreased from 464.2 to 385.6. Over the last five years, since 2005, rates have declined by 3.5 fatalities and 169.5 injuries per billion vehicle kilometers travelled.

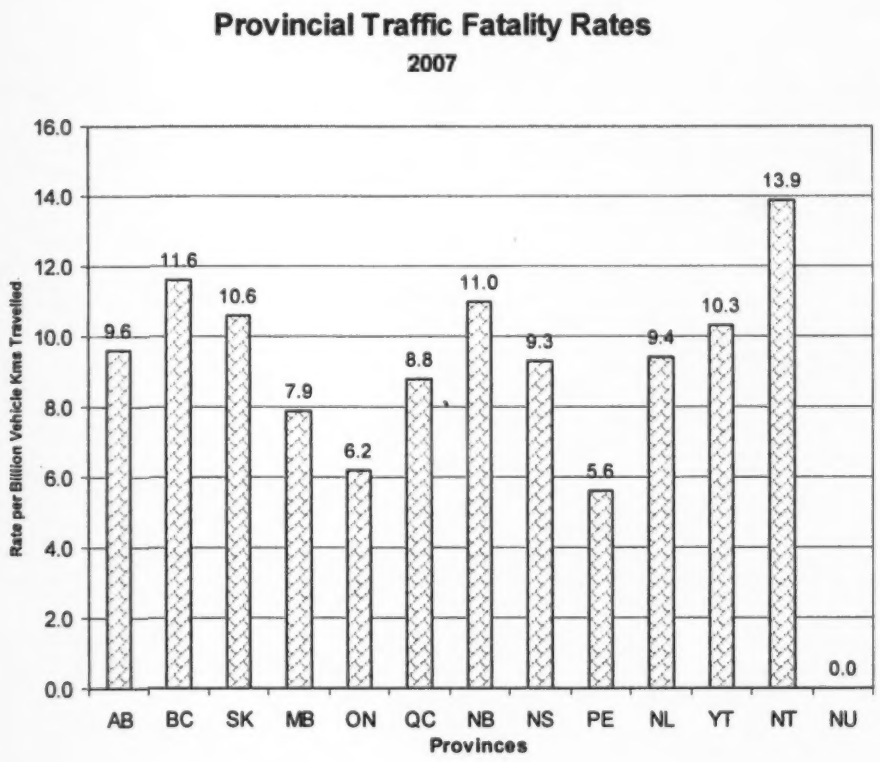
Provincial comparisons for Canada and other Canadian jurisdictions for 2008 and 2009 were not available at time of printing.

*Figures for other Canadian jurisdictions for 2008 and 2009 were not available at time of printing. The numbers in this report are based on the final 2007 collision counts received by Transport Canada and may differ from the 2008 publication in this series, which were based on preliminary numbers.

Sources: Transport Canada Canadian Motor Vehicle Traffic Collision Statistics TP3322 and Statistics Canada, "Canadian Vehicle Survey", catalogue No. 53-223-XIE. The Canadian Vehicle Survey (CVS) is a voluntary vehicle-based survey that provides annual estimates of road vehicle activity (Vehicle-kilometres and passenger-kilometres) of vehicles registered in Canada. The in-scope vehicles for the CVS include all motor vehicles except motorcycles, buses, off-road vehicles (e.g., snowmobiles, dune buggies, amphibious vehicles) and special equipment (e.g. cranes, street cleaners, snowplows and backhoes) registered in Canada anytime during the survey reference period that have not been scrapped or salvaged.

Figure 2


Alberta Fatality Rate
2005-2009
Fatality Rate Per Billion Kms Travelled
10.0
8.0
6.0
4.0
2.0
0.0
7.1
8.6
9.6
10.0
10.6
2009
2008
2007
2006
2005
Year


Provincial Traffic Fatality Rates
2007
Rate per Billion Vehicle Kms Travelled
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
9.6
11.6
10.6
7.9
6.2
8.8
11.0
9.3
5.6
9.4
10.3
13.9
0.0
AB
BC
SK
MB
ON
QC
NB
NS
PE
NL
YT
NT
NU
Provinces

When the Collisions Occurred

Month

September experienced more casualty collisions than other months. The highest number of property damage collisions was recorded during the month of December.

Day of Week

The daily distribution of collisions indicated that Friday was the most collision-prone day of the week.

Time

The afternoon rush hour period (3:00 p.m. – 6:59 p.m.) accounted for the highest proportion of collisions. The least collision-prone time period was the early morning (3:00 a.m. – 6:59 a.m.).

Holidays

The August Long Weekend recorded the highest number of fatalities. The five day Christmas Season recorded the highest number of injuries and total number of collisions.

Table 2.1

Collision Occurrence by Month

2009

Month	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
January	18	6.0	1308	9.2	15169	10.6	16495	10.5
February	16	5.3	1072	7.5	11582	8.1	12670	8.1
March	19	6.3	1223	8.6	13829	9.7	15071	9.6
April	23	7.6	914	6.4	8855	6.2	9792	6.2
May	27	8.9	1062	7.5	9169	6.4	10258	6.5
June	28	9.3	1216	8.5	9892	6.9	11136	7.1
July	40	13.2	1148	8.1	9819	6.9	11007	7.0
August	32	10.6	1271	8.9	9324	6.5	10627	6.8
September	32	10.6	1318	9.3	9897	6.9	11247	7.2
October	25	8.3	1243	8.7	12613	8.8	13881	8.8
November	24	7.9	1152	8.1	13294	9.3	14470	9.2
December	18	6.0	1316	9.2	18855	13.2	20189	12.8
Unspecified	--	--	3	0.0	380	0.3	383	0.2
Total Number of Collisions	**302**	**100.0**	**14246**	**100.0**	**142678**	**100.0**	**157226**	**100.0**

Observations

The month of July experienced more fatal crashes than any other month. The highest number of reported injury collisions were in September. December recorded more property damage collisions than any other month.

Table 2.2

Collision Occurrence by Day of Week

2009

Day of Week	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Collisions N	Property Damage Collisions %	Total Collisions N	Total Collisions %
Monday	32	10.6	1897	13.3	19331	13.5	21260	13.5
Tuesday	34	11.3	2102	14.8	21341	15.0	23477	14.9
Wednesday	35	11.6	2043	14.3	21224	14.9	23302	14.8
Thursday	42	13.9	2284	16.0	22086	15.5	24412	15.5
Friday	53	17.5	2398	16.8	24254	17.0	26705	17.0
Saturday	64	21.2	1939	13.6	19155	13.4	21158	13.5
Sunday	42	13.9	1576	11.1	14803	10.4	16421	10.4
Unspecified	--	--	7	0.0	484	0.3	491	0.3
Total Number of Collisions	**302**	**100.0**	**14246**	**100.0**	**142678**	**100.0**	**157226**	**100.0**

Observations

The daily distribution of collisions indicated that overall Friday was the most collision-prone day of the week.

Table 2.3

Collision Occurrence by Time Period

2009

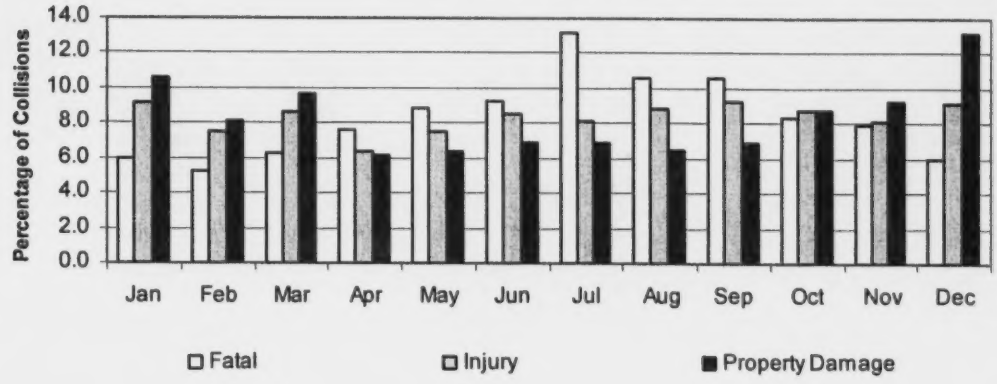
Time Period	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Collisions N	Property Damage Collisions %	Total Collisions N	Total Collisions %
11:00 p.m. - 2:59 a.m.	51	16.9	1070	7.5	9099	6.4	10220	6.5
3:00 a.m. - 6:59 a.m.	21	7.0	685	4.8	6866	4.8	7572	4.8
7:00 a.m. - 10:59 a.m.	43	14.2	2519	17.7	26362	18.5	28924	18.4
11:00 a.m. - 2:59 p.m.	57	18.9	3337	23.4	35288	24.7	38682	24.6
3:00 p.m. - 6:59 p.m.	60	19.9	4356	30.6	41265	28.9	45681	29.1
7:00 p.m. - 10:59 p.m.	67	22.2	2122	14.9	20609	14.4	22798	14.5
Unspecified	3	1.0	157	1.1	3189	2.2	3349	2.1
Total Number of Collisions	**302**	**100.0**	**14246**	**100.0**	**142678**	**100.0**	**157226**	**100.0**

Observations

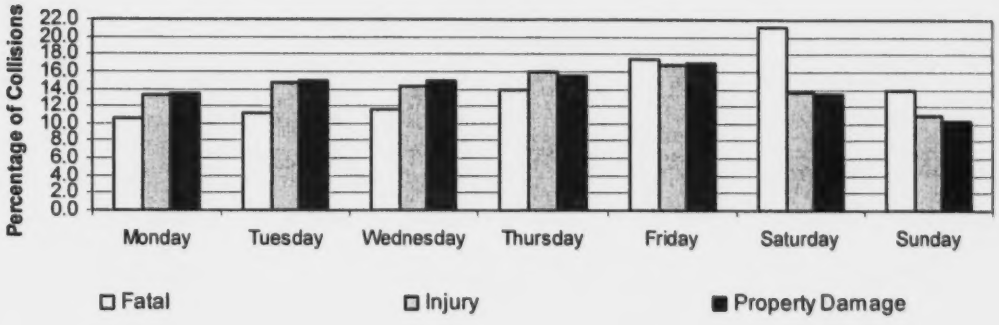
The afternoon rush hour period (3:00 p.m. – 6:59 p.m.) accounted for the largest percentage (29.1%) of collisions occurring in a 24 hour period. The least collision-prone time period was the early morning (3:00 a.m. – 6:59 a.m.).

Figure 3

Collision Occurrence By Month
Alberta 2009



Collision Occurrence By Day of Week
Alberta 2009



Collision Occurrence By Time Period
Alberta 2009

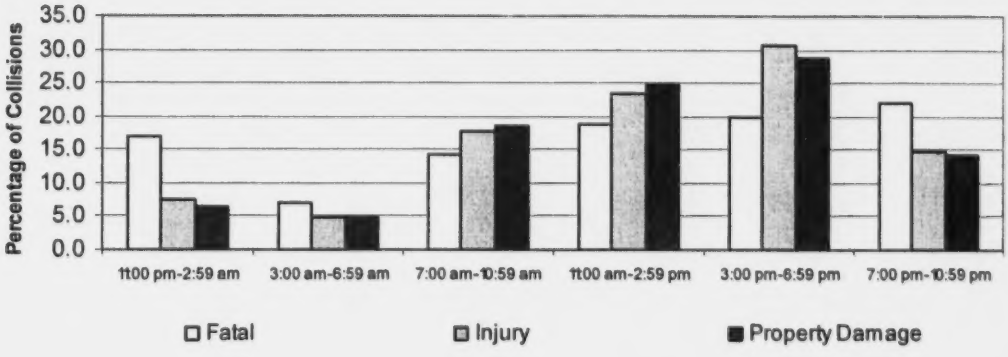


Table 2.4

Collisions During 2009 Holidays

Holidays	Number Killed N	Number Injured N	Total Collisions* N
New Year's Day (January 1)	1	46	389
Family Day Long Weekend (February 13-16)	5	184	1674
Easter Long Weekend (April 9-13)	5	212	1481
Victoria Day Long Weekend (May 15-18)	2	179	1186
Canada Day (July 1)	2	54	295
August Long Weekend (July 31-August 3)	10	224	1173
Labour Day Long Weekend (September 4-7)	7	189	1241
Thanksgiving Long Weekend (October 9-12)	2	200	1374
Remembrance Day (November 11)	--	20	282
Christmas Season (December 24-28)	4	234	2176
TOTAL	**38**	**1542**	**11271**

Observations

The August Long Weekend recorded the highest number of fatalities. The five day Christmas Season recorded the highest number of injuries and total number of collisions.

*Total collisions includes fatal, injury and property damage collisions.

Note: Comparisons should be done with caution. The number of days for each holiday period within the year may vary. From year to year, holiday periods may also vary in length.

Victims

Road User Class

The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and motorcyclists accounted for 6.2% and 3.8% of the total casualties, respectively.

Age of Casualties

Casualty rates per 10,000 population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children 14 and under.

Table 3.1

Injuries and Fatalities by Road User Class

2009

Road User Class	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Total Casualties N	Total Casualties %
Drivers	173	49.3	11397	59.5	11570	59.3
Passengers	84	23.9	4922	25.7	5006	25.6
Pedestrians	35	10.0	1173	6.1	1208	6.2
Motorcyclists	36	10.3	715	3.7	751	3.8
Bicyclists	2	0.6	535	2.8	537	2.8
Other	13	3.7	264	1.4	277	1.4
Unspecified	8	2.3	161	0.8	169	0.9
Total Casualties	**351**	**100.0**	**19167**	**100.0**	**19518**	**100.0**

Observations

The majority of traffic victims were drivers (59.3%) and passengers (25.6%) of vehicles. Pedestrians and motorcyclists accounted for 6.2% and 3.8% of the total casualties, respectively.

Table 3.2

Age of Casualties

2009

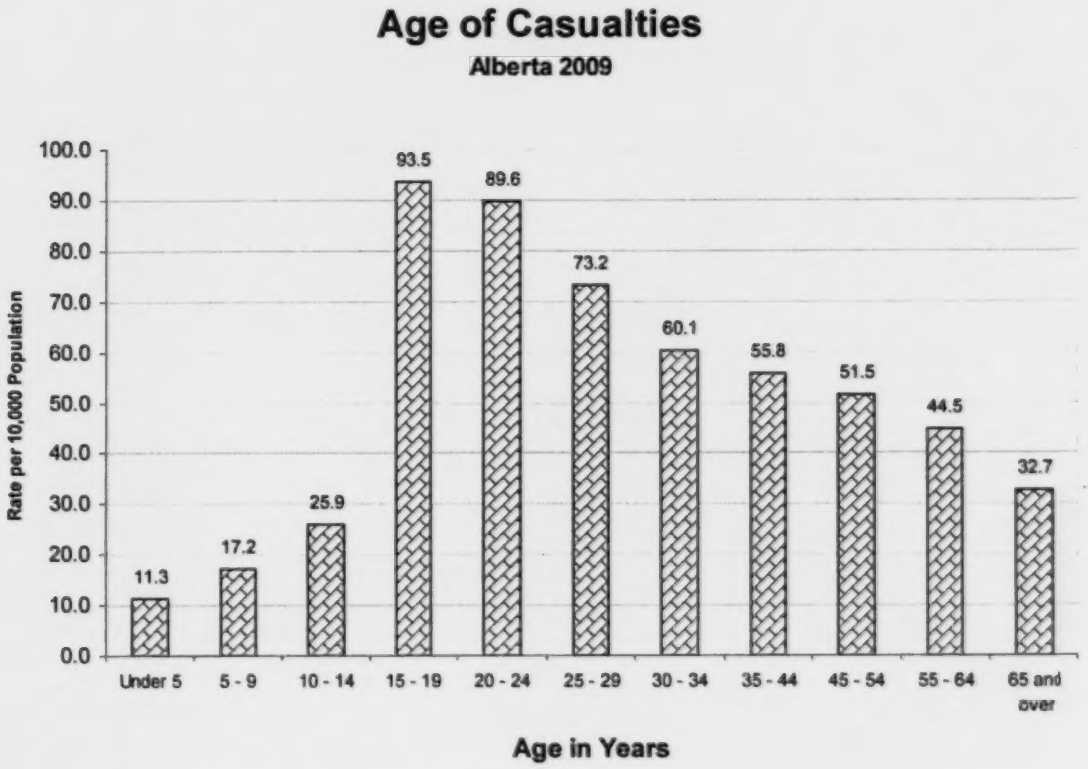
Age in Years	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Total Casualties N	Total Casualties %	Casualty Rate Per 10,000 Population*
Under 5	5	1.4	264	1.4	269	1.4	11.3
5-9	5	1.4	363	1.9	368	1.9	17.2
10-14	1	0.3	575	3.0	576	3.0	25.9
15-19	36	10.3	2286	11.9	2322	11.9	93.5
20-24	56	16.0	2554	13.3	2610	13.4	89.6
25-29	35	10.0	2243	11.7	2278	11.7	73.2
30-34	33	9.4	1682	8.8	1715	8.8	60.1
35-44	46	13.1	2996	15.6	3042	15.6	55.8
45-54	56	16.0	2857	14.9	2913	14.9	51.5
55-64	36	10.3	1668	8.7	1704	8.7	44.5
65 and over	42	12.0	1216	6.3	1258	6.4	32.7
Unspecified	--	--	463	2.4	463	2.4	
Total Casualties	**351**	**100.0**	**19167**	**100.0**	**19518**	**100.0**	

Observations

Casualty rates per 10,000 population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children 14 years of age and younger.

*Based on estimates of the Alberta population by age groups and sex, July 1, 2009, Statistics Canada

Figure 4


Age of Casualties
Alberta 2009
Rate per 10,000 Population
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
11.3
17.2
25.9
93.5
89.6
73.2
60.1
55.8
51.5
44.5
32.7
Under 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years

Drivers

Age and Sex of Drivers

Collision rates per 1000 licensed drivers indicate that males 18 to 19 years old were more likely to be involved in a casualty collision than any other age group. The next age group most likely to be involved in casualty collisions was males 16 to 17 years old.

Driver Actions

Following too closely (31.4%), running off the road (15.4%) and left turn across path (12.1%) were the most frequently identified improper driver actions contributing to casualty collisions.

Table 4.1

Age and Sex of Drivers Involved in Casualty Collisions:

Per 1,000 Licensed Drivers

2009

	Male			Female			Total*		
Age of Driver	N	%	Rate Per 1000** Licensed Drivers	N	%	Rate Per 1000** Licensed Drivers	N	%	Rate Per 1000** Licensed Drivers
Under 16	147	0.6	9.7	55	0.2	4.3	202	0.8	7.3
16-17	567	2.2	17.9	421	1.7	15.3	988	3.9	16.7
18-19	840	3.3	20.3	538	2.1	14.8	1378	5.4	17.7
20-24	2062	8.1	15.5	1315	5.2	11.2	3377	13.3	13.5
25-34	3455	13.6	11.4	2211	8.7	8.2	5670	22.4	9.9
35-44	2733	10.8	10.0	1922	7.6	7.8	4656	18.4	8.9
45-54	2635	10.4	9.1	1717	6.8	6.5	4354	17.2	7.9
55-64	1580	6.2	8.0	881	3.5	5.0	2462	9.7	6.5
65 and over	1090	4.3	6.9	595	2.3	4.4	1685	6.7	5.8
Unspecified	101	0.4		30	0.1		556	2.2	
Total Number of Drivers	**15210**	**60.1**		**9685**	**38.2**		**25328**	**100.0**	

Observations

Collision rates per 1000 licensed drivers indicated that males 18 to 19 years old were more likely to be involved in a casualty collision than any other age group. The next age group most likely to be involved in casualty collisions was males 16 to 17 years old.

*Total includes drivers whose sex was not specified on the collision report form. Includes bicyclists.

**Source: Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2009.

Figure 5

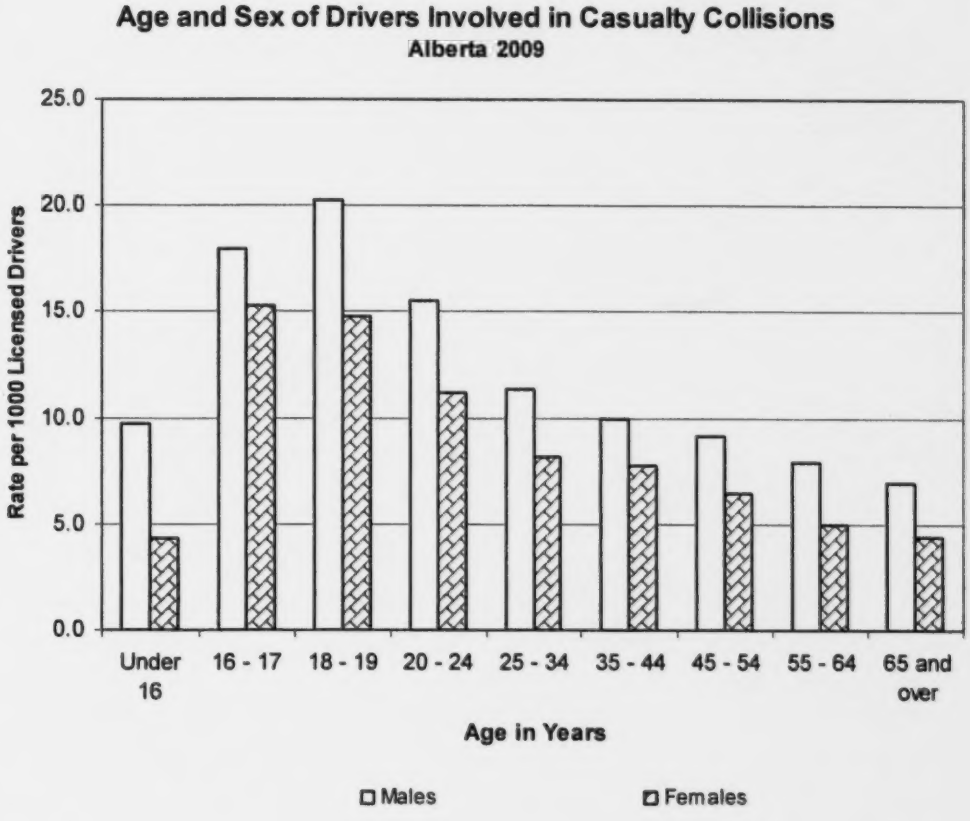

Age and Sex of Drivers Involved in Casualty Collisions
Alberta 2009
Rate per 1000 Licensed Drivers
25.0
20.0
15.0
10.0
5.0
0.0
Under 16
16 - 17
18 - 19
20 - 24
25 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years
Males
Females

Table 4.2

Improper Actions of Drivers Involved in Casualty Collisions*

2009

Improper Actions	Drivers in Fatal Collisions N	%	Drivers in Non-Fatal Injury Collisions N	%	Total Drivers in Casualty Collisions N	%
Followed Too Closely	43	15.5	3353	31.8	3396	31.4
Ran Off Road	101	36.3	1561	14.8	1662	15.4
Left Turn Across Path	13	4.7	1292	12.3	1305	12.1
Stop Sign Violation	26	9.4	774	7.3	800	7.4
Disobey Traffic Signal	4	1.4	777	7.4	781	7.2
Failed to Yield Right of Way to Pedestrian	5	1.8	439	4.2	444	4.1
Left of Centre	44	15.8	330	3.1	374	3.5
Improper Turn	2	0.7	364	3.5	366	3.4
Improper Lane Change	3	1.1	323	3.1	326	3.0
Backed Unsafely	1	0.4	288	2.7	289	2.7
Yield Sign Violation	2	0.7	214	2.0	216	2.0
Failed to Yield Right of Way - Uncontrolled Intersection	4	1.4	188	1.8	192	1.8
Improper Passing	5	1.8	138	1.3	143	1.3
Other	25	9.0	490	4.7	515	4.8
Total Number of Drivers	**278**	**100.0**	**10531**	**100.0**	**10809**	**100.0**

Observations

Following too closely (31.4%), running off the road (15.4%) and left turn across path (12.1%) were the most frequently identified improper driver actions contributing to casualty collisions.

*Based on those cases where driver actions were specified on the collision report form. Includes bicyclists.

Note: There was a total of 22169 drivers involved in casualty collisions for which a driver action was specified on the collision report form. 11360 were indicated as driving properly at the time of the collision.

Vehicles

Types of Vehicles

Passenger cars (45.4%), minivans/MPV (23.3%) and pick-up trucks/vans (19.5%) were the vehicles most frequently involved in total casualty collisions.

Vehicle Factors

Overall 0.9% of vehicles involved in casualty collisions were identified as having a vehicle defect. The most common defect was defective brakes.

Point of Impact

The most common point of impact in casualty collisions involved the front of the vehicle. Overall 44.2% of the impacts involved the centre front.

Table 5.1

Types of Vehicles Involved in Casualty Collisions*

2009

Type of Vehicle	Vehicles in Fatal Collisions N	%	Vehicles in Non-Fatal Injury Collisions N	%	Total Vehicles in Casualty Collisions N	%
Passenger Car	158	29.9	11593	45.8	11751	45.4
Mini-Van/MPV	83	15.7	5947	23.5	6030	23.3
Pick-up Truck/Van	151	28.5	4901	19.3	5052	19.5
Truck 4500 kg+	32	6.0	838	3.3	870	3.4
Motorcycle	34	6.4	692	2.7	726	2.8
Bicycle	2	0.4	535	2.1	537	2.1
Tractor-Trailer	44	8.3	331	1.3	375	1.5
Off-Highway Vehicle	13	2.5	158	0.6	171	0.7
Transit Bus	--	--	120	0.5	120	0.5
Emergency Vehicle	5	0.9	59	0.2	64	0.2
School Bus	--	--	62	0.2	62	0.2
Construction Equipment	3	0.6	26	0.1	29	0.1
Farm Equipment	3	0.6	16	0.1	19	0.1
Motorized Snow Vehicle	--	--	17	0.1	17	0.1
Other Bus	--	--	13	0.1	13	0.1
Motorhome	1	0.2	11	0.0	12	0.0
Intercity Bus	--	--	5	0.0	5	0.0
Moped	--	--	3	0.0	3	0.0
Other	--	--	2	0.0	2	0.0
Total Number of Vehicles	**529**	**100.0**	**25329**	**100.0**	**25858**	**100.0**

Observations

Passenger cars, mini-van/MPV and pick-up trucks/vans were the vehicles most frequently involved in total casualty collisions. Overall, bicycles represented 2.1% and motorcycles 2.8% of the vehicles involved in casualty collisions. Tractor-Trailers were 1.5% of total vehicles in casualty crashes, but 8.3% of vehicles in fatal crashes.

*Based on those cases where type of vehicle was specified on the collision report form.

Table 5.2

Vehicle Factors Involved in Casualty Collisions*

2009

Vehicle Factors	Vehicles in Fatal Collisions N	%	Vehicles in Non-Fatal Injury Collisions N	%	Total Vehicles in Casualty Collisions N	%
No Apparent Defect	402	97.8	20678	99.2	21080	99.1
Defective Brakes	2	0.5	45	0.2	47	0.2
Tires Failed	3	0.7	31	0.1	34	0.2
Improper Load/Shift	--	--	9	0.0	9	0.0
Lighting Defect	1	0.2	5	0.0	6	0.0
Other	3	0.7	86	0.4	89	0.4
Total Number of Vehicles	**411**	**100.0**	**20854**	**100.0**	**21265**	**100.0**

Observations

Overall 0.9% of vehicles involved in casualty collisions were identified as having a vehicle defect. The most common defect was defective brakes.

*Based on those cases where a vehicle factor was specified on the collision report form. This information does not indicate whether or not a mechanical inspection of the collision-involved vehicle was conducted.

Table 5.3

Point of Impact on Vehicles Involved in Casualty Collisions*

2009

Point of Impact	Vehicles in Fatal Collisions N	%	Vehicles in Non-Fatal Injury Collisions N	%	Total Vehicles in Casualty Collisions N	%
Centre Front	233	46.2	10552	44.1	10785	44.2
Centre Rear	34	6.7	4959	20.7	4993	20.4
Left Front	42	8.3	1770	7.4	1812	7.4
Right Front	17	3.4	1736	7.3	1753	7.2
Rollover	82	16.3	1662	7.0	1744	7.1
Left Side	31	6.2	930	3.9	961	3.9
Right Side	30	6.0	894	3.7	924	3.8
Right Rear	5	1.0	577	2.4	582	2.4
Left Rear	9	1.8	559	2.3	568	2.3
Attachment	11	2.2	138	0.6	149	0.6
Undercarriage	6	1.2	74	0.3	80	0.3
Top	4	0.8	62	0.3	66	0.3
Total Number of Vehicles	**504**	**100.0**	**23913**	**100.0**	**24417**	**100.0**

Observations

The most common point of impact in casualty collisions involved the front of the vehicle. 44.2% of the impacts involved the centre front, while 20.4% of the impacts involved the centre rear.

*Based on those cases where point of impact was specified on the collision report form.

Environment

Location

The majority of fatal crashes (71.9%) occurred in rural areas, whereas the majority of injury (74.6%) and property damage (82.7%) crashes occurred in urban areas.

Surface Conditions

The majority (58.7%) of all casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 18.2% of fatal collisions and 24.9% of non-fatal injury collisions.

Table 6.1

Location of Collisions

2009

Location	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Collisions N	Property Damage Collisions %	Total Collisions N	Total Collisions %
Urban	85	28.1	10633	74.6	117952	82.7	128670	81.8
Rural	217	71.9	3613	25.4	24726	17.3	28556	18.2
Total Number of Collisions	**302**	**100.0**	**14246**	**100.0**	**142678**	**100.0**	**157226**	**100.0**

Observations

Collisions which occurred in rural areas accounted for 71.9% of all fatal crashes. Collisions occurring in urban areas resulted in the highest proportion of non-fatal injury collisions (74.6%) and property damage crashes (82.7%).

Table 6.2

Casualty Collision Occurrence by Surface Condition

2009

Surface Condition	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Dry	204	67.5	8337	58.5	8541	58.7
Slush/Snow/Ice	55	18.2	3542	24.9	3597	24.7
Wet	18	6.0	1036	7.3	1054	7.2
Loose Surface Material	16	5.3	285	2.0	301	2.1
Muddy	1	0.3	30	0.2	31	0.2
Other	2	0.7	55	0.4	57	0.4
Unspecified	6	2.0	961	6.7	967	6.6
Total Number of Collisions	**302**	**100.0**	**14246**	**100.0**	**14548**	**100.0**

Observations

The majority (58.7%) of casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 18.2% of fatal collisions and 24.9% of non-fatal injury collisions.

Special Types of Vehicles

Motorcycles

- In 2009, based on motorcycle registrations, the involvement rate of motorcycles has decreased in fatal collisions and in injury collisions from 2008.
- The majority of motorcycle casualty collisions involved male drivers. Motorcycle drivers under the age of 25 had the highest involvement rate per 1000 licensed drivers. In particular, 16-17 year old motorcycle drivers had an involvement rate per 1000 licensed drivers of 30.3, a rate over two times greater than that of the 20-24 year old motorcycle drivers.
- Compared to drivers involved in total casualty collisions, motorcycle drivers were more likely to run off the road or pass improperly. However, motorcycle drivers were less likely to follow too closely, make an unsafe left turn or disobey a traffic signal.
- Compared to drivers involved in all types of vehicle casualty collisions, motorcycle drivers were more likely to have consumed alcohol before the crash.
- Vehicle factors were identified for 2.2% of motorcycles involved in casualty collisions compared to 0.9% for all types of vehicles involved in casualty collisions.
- The majority of casualty collisions involving motorcycles occurred on dry roads.

Table 7.1

Motorcycles Involved in Casualty Collisions

2005 – 2009

Number of Motorcycles	2009	2008	2007	2006	2005
Fatal	34	43	34	31	22
Non-Fatal Injury	692	807	773	764	718
Total Number of Motorcycles Involved in Casualty Collisions	**726**	**850**	**807**	**795**	**740**
Casualties*					
Number Killed	37	42	32	32	21
Number Injured	757	852	833	830	771
Total Casualties in Collisions Involving Motorcycles	**794**	**894**	**865**	**862**	**792**
Number of Motorcycles Involved in Casualty Collisions Per 10,000 Registered Motorcycles**					
Fatal Collisions	3.3	4.4	4.0	4.2	3.4
Non-Fatal Injury Collisions	67.4	82.4	90.5	103.1	110.9

Observations

Based on motorcycle registrations in 2009, the involvement rate of motorcycles has decreased in fatal and injury collisions from 2008.

*This refers to the total number of people killed and injured in collisions in which a motorcycle was involved. It does not refer to the number of motorcyclists killed and injured.

** Source: Based on vehicle registration statistics, Service Alberta – Registries Services, December 31, 2009.

Figure 6

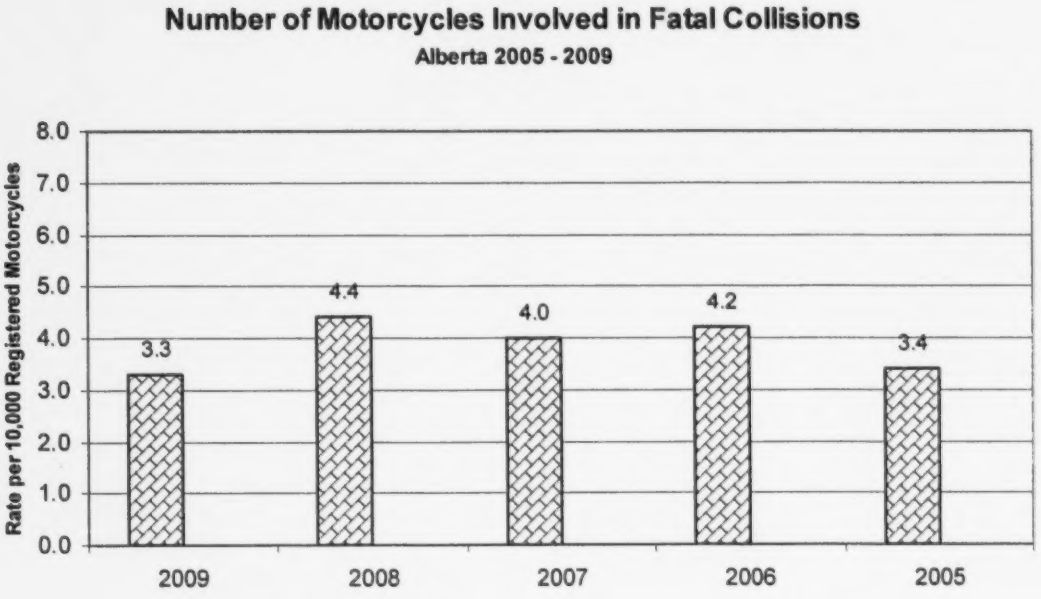

Number of Motorcycles Involved in Fatal Collisions
Alberta 2005 - 2009
Rate per 10,000 Registered Motorcycles
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
3.3
4.4
4.0
4.2
3.4
2009
2008
2007
2006
2005

Table 7.2

Age and Sex of Motorcycle Drivers Involved in Casualty Collisions

2009

Age of Motorcycle Driver	Male N	Male %	Female N	Female %	Total* N	Total* %	Rate Per 1,000 Licensed Motorcycle Drivers**
Under 16	11	1.5	1	0.1	12	1.7	
16-17	5	0.7	--	--	5	0.7	30.3
18-19	19	2.6	--	--	19	2.6	22.2
20-24	109	15.0	10	1.4	119	16.4	12.8
25-34	156	21.5	16	2.2	172	23.7	4.2
35-44	104	14.3	22	3.0	126	17.4	2.3
45-54	154	21.2	25	3.4	180	24.8	2.3
55-64	69	9.5	5	0.7	74	10.2	1.4
65 and over	11	1.5	--	--	11	1.5	0.6
Unspecified	1	0.1	--	--	7	1.0	
Total Number of Motorcycle Drivers	**639**	**88.1**	**79**	**10.9**	**725**	**100.0**	

Observations

The majority of motorcycle casualty collisions involved male drivers. Based on involvement per 1,000 licensed operators, motorcycle drivers under the age of 25 were most likely to be involved in collisions. In particular, 16-17 year old motorcycle drivers had the highest involvement rate per 1,000 licensed motorcyclists. These age and sex comparisons are limited due to the lack of driving exposure data. That is, in order to make valid age comparisons, it is important to take into account the number of kilometers driven annually by each age and sex group of motorcycle operators.

Note: In Alberta, Class 6 (motorcycle) licenses are not issued to operators under 16 years of age.

*Total includes drivers whose sex was not specified on the collision report form.

**Source: Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2009.

Table 7.3

Improper Actions of Motorcycle Drivers Involved in Casualty Collisions*

2009

Improper Actions of Motorcycle Driver	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Ran Off Road	99	39.4	15.4
Followed Too Closely	47	18.7	31.4
Improper Passing	19	7.6	1.3
Left of Centre	17	6.8	3.5
Improper Turn	11	4.4	3.4
Improper Lane Change	9	3.6	3.0
Stop Sign Violation	9	3.6	7.4
Disobey Traffic Signal	7	2.8	7.2
Left Turn Across Path	5	2.0	12.1
Failed to Yield Right of Way - Uncontrolled Intersection	3	1.2	1.8
Yield Sign Violation	1	0.4	2.0
Failed to Yield Right of Way to Pedestrian	1	0.4	4.1
Backed Unsafely	1	0.4	2.7
Other	22	8.8	4.8
Total Number of Motorcycle Drivers	**251**	**100.0**	

Observations

Compared to drivers involved in total casualty collisions, motorcycle drivers were more likely to run off the road or pass improperly. However, motorcycle drivers were less likely to follow too closely, make an unsafe left turn or disobey a traffic signal.

*Based on those cases where driver actions were specified on the collision report form.

Note: There was a total of 598 motorcycle drivers involved in casualty collisions for which a driver action was specified on the collision report form. 347 were indicated as driving properly at the time of the collision.

Table 7.4

Condition of Motorcycle Drivers Involved in Casualty Collisions*

2009

Condition of Motorcycle Driver	N	%	Driver Condition in Total Casualty Collisions (All Vehicle Types) %
Normal	565	91.7	92.9
Had Been Drinking	24	3.9	2.3
Alcohol Impaired	21	3.4	3.0
Total Alcohol Involvement	**45**	**7.3**	**5.3**
Other	6	1.0	1.8
Total Number of Motorcycle Drivers	**616**	**100.0**	

Observations

The motorcycle driver's condition was a contributory factor for 8.3% of the involved motorcycle drivers. Compared to drivers involved in total casualty collisions, motorcycle drivers were more likely to have consumed alcohol prior to the crash.

*Based on those cases where driver condition was specified on the collision report form.

Table 7.5

Motorcycle Vehicle Factors in Casualty Collisions*

2009

Vehicle Factors	N	%	Vehicle Factors in Total Casualty Collisions (All Vehicle Types) %
No Apparent Defect	617	97.8	99.1
Tires Failed	4	0.6	0.2
Defective Brakes	4	0.6	0.2
Other	6	1.0	0.4
Total Number of Motorcycles	**631**	**100.0**	

Observations

Vehicle factors were identified for 2.2% of the motorcycles involved in casualty collisions, compared to 0.9% for all types of vehicles involved in casualty collisions.

*Based on those cases where a vehicle factor was specified on the collision report form. This does not indicate that a mechanical inspection of the collision-involved motorcycle was conducted.

Table 7.6

Casualty Collisions Involving Motorcycles:

Month of Occurrence

2009

Month	N	%
January	1	0.1
February	--	--
March	1	0.1
April	38	5.4
May	127	18.0
June	132	18.7
July	128	18.1
August	125	17.7
September	130	18.4
October	13	1.8
November	11	1.6
December	--	--
Total Number of Collisions	**706**	**100.0**

Observations

The month of June recorded the highest proportion of casualty crashes involving motorcycles.

Table 7.7

Casualty Collisions Involving Motorcycles:

Road Surface Condition

2009

Road Surface Condition	N	%
Dry	613	86.8
Loose Surface Material	40	5.7
Wet	19	2.7
Slush/Snow/Ice	1	0.1
Muddy	1	0.1
Other	7	1.0
Unspecified	25	3.5
Total Number of Collisions	**706**	**100.0**

Observations

The majority (86.8%) of casualty collisions involving motorcycles occurred on dry roads. Loose material on the road surface was involved in 5.7% of motorcycle casualty crashes. Wet roads were the scene of 2.7% of motorcycle casualty collisions.

Special Types of Vehicles

Truck Tractors

- In 2009, there were 49 persons killed and 453 injured in collisions involving truck tractors. This represents a decrease in fatalities and injuries from 2008.
- Compared to drivers of other vehicles, truck tractor drivers were more likely to run off the road or make an improper turn. However, operators of truck tractors were less likely than other vehicle operators to follow too closely, make an unsafe left turn, or disobey a traffic signal.
- Truck tractor drivers were less likely to consume alcohol before the crash than were drivers in total casualty collisions.
- Vehicle factors were more likely to be present in truck tractor casualty collisions than in total casualty collisions.
- The occurrence of casualty collisions involving truck tractors was highest in the month of December.

Table 7.8

Truck Tractors Involved in Casualty Collisions

2005 – 2009

Number of Truck Tractors	2009	2008	2007	2006	2005
Fatal	44	55	73	64	45
Non-Fatal Injury	331	498	577	642	601
Total Number of Truck Tractors Involved in Casualty Collisions	**375**	**553**	**650**	**706**	**646**
Casualties*					
Number Killed	49	61	81	67	58
Number Injured	453	657	754	813	802
Total Casualties in Collisions Involving Truck Tractors	**502**	**718**	**835**	**880**	**860**

Observations

In 2009, there were 49 persons killed and 453 injured in collisions involving truck tractors. This represents a decrease in fatalities and injuries from 2008. The total number of truck tractors involved in casualty crashes was highest in 2006 at 706.

*This refers to the total number of people killed and injured in collisions in which a truck tractor was involved. It does not refer to the number of truck tractor drivers killed and injured.

Table 7.9

Improper Actions of Truck Tractor Drivers Involved in Casualty Collisions*

2009

Improper Actions of Truck Tractor Driver	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Ran Off Road	28	26.7	15.4
Followed Too Closely	23	21.9	31.4
Improper Turn	11	10.5	3.4
Left Turn Across Path	8	7.6	12.1
Improper Lane Change	7	6.7	3.0
Left of Centre	6	5.7	3.5
Stop Sign Violation	5	4.8	7.4
Improper Passing	4	3.8	1.3
Disobey Traffic Signal	3	2.9	7.2
Yield Sign Violation	2	1.9	2.0
Failed to Yield Right of Way - Uncontrolled Intersection	2	1.9	1.8
Backed Unsafely	1	1.0	2.7
Other	5	4.8	4.8
Total Number of Drivers	**105**	**100.0**	

Observations

Compared to drivers of other vehicles, truck tractor drivers were more likely to run off the road or make an improper turn. However, operators of truck tractors were less likely than other vehicle operators to follow too closely, make an unsafe left turn, or disobey a traffic signal.

*Based on those cases where driver actions were specified on the collision report form.

Note: There was a total of 310 truck-tractor drivers involved in casualty collisions for which a driver action was specified on the collision report form. 205 were indicated as driving properly at the time of the collision.

Table 7.10

Condition of Truck Tractor Drivers Involved in Casualty Collisions*

2009

Driver Condition	N	%	Driver Condition in Total Casualty Collisions (All Vehicle Types) %
Normal	305	97.4	92.9
Had Been Drinking	--	--	2.3
Alcohol Impaired	1	0.3	3.0
Total Alcohol Involvement	**1**	**0.3**	**5.3**
Fatigued/Asleep	6	1.9	0.8
Impaired by Drugs	--	--	0.2
Other	1	0.3	0.8
Total Number of Drivers	**313**	**100.0**	

Observations

The condition of the truck tractor driver was a contributory factor for 2.6% of the drivers involved. Truck tractor drivers were less likely to consume alcohol before the crash than were drivers involved in total casualty collisions (0.3% compared to 5.3%). However, they were more likely to have been fatigued or asleep at the time of the crash.

*Based on those cases where driver condition was specified on the collision report form.

Table 7.11

Vehicle Factors of Truck Tractors Involved in Casualty Collisions*

2009

Vehicle Factors	N	%	Vehicle Factors in Total Casualty Collisions (All Vehicle Types) %
No Apparent Defect	310	96.3	99.1
Improper Load/Shift	3	0.9	0.0
Tires Failed	2	0.6	0.2
Defective Brakes	2	0.6	0.2
Other	5	1.6	0.4
Total Number of Truck Tractors	**322**	**100.0**	

Observations

Vehicle factors were identified for 3.7% of truck tractors in casualty collisions. Vehicle factors were more likely to be present in truck tractor collisions than in total casualty collisions.

*Based on those cases where a vehicle factor was specified on the collision report form. This does not indicate whether or not a mechanical inspection of the collision-involved truck tractor was conducted.

Table 7.12

Casualty Collisions Involving Truck Tractors:

Month of Occurrence

2009

Month	N	%
January	42	11.8
February	35	9.8
March	33	9.2
April	22	6.2
May	15	4.2
June	31	8.7
July	21	5.9
August	23	6.4
September	24	6.7
October	33	9.2
November	35	9.8
December	43	12.0
Total Number of Collisions	**357**	**100.0**

Observations

The occurrence of casualty collisions involving truck tractors was highest in the month of December. The lowest number of truck tractor casualty collisions occurred during May.

Special Types of Vehicles

Trains

- In 2009, two people were killed and 12 people were injured in crashes in which a train was involved. The number of casualties involving trains has decreased from 2008.
- The largest number of casualty collisions involving trains occurred in the months of January, April, and October.
- A large percentage of drivers involved in casualty collisions with a train disobeyed a traffic control device.

Table 7.13

Trains Involved in Casualty Collisions

2005 – 2009

Number of Trains	2009	2008	2007	2006	2005
Fatal	2	3	4	3	5
Non-Fatal Injury	9	21	18	23	23
Total Number of Trains Involved in Casualty Collisions	**11**	**24**	**22**	**26**	**28**
Casualties*					
Number Killed	2	3	5	3	5
Number Injured	12	27	30	30	28
Total Casualties in Collisions Involving Trains	**14**	**30**	**35**	**33**	**33**

Observations

The number of trains involved in casualty collisions decreased from 2008. The number of casualties resulting from these collisions also decreased.

*This refers to the total number of people killed and injured in collisions involving a train.

Table 7.14

Casualty Collisions Involving Trains:

Month of Occurrence

2009

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
January	--	--	2	22.2	2	18.2
February	--	--	1	11.1	1	9.1
March	--	--	1	11.1	1	9.1
April	--	--	2	22.2	2	18.2
May	--	--	1	11.1	1	9.1
June	1	50.0	--	--	1	9.1
July	--	--	1	11.1	1	9.1
August	--	--	--	--	--	--
September	--	--	--	--	--	--
October	1	50.0	1	11.1	2	18.2
November	--	--	--	--	--	--
December	--	--	--	--	--	--
Total Number of Collisions	**2**	**100.0**	**9**	**100.0**	**11**	**100.0**

Observations

The largest number of casualty collisions involving trains occurred in the months of January, April, and October.

Table 7.15

Actions of Drivers Involved in Casualty Collisions with Trains*

2009

Driver Actions	Drivers in Fatal Collisions N	%	Drivers in Non-Fatal Injury Collisions N	%	Total Drivers in Casualty Collisions N	%
Driving Properly	--	--	--	--	--	--
Disobey Traffic Signal	--	--	5	62.5	5	50.0
Stop Sign Violation	1	50.0	2	25.0	3	30.0
Failed to Yield Right of Way - Uncontrolled Intersection	--	--	1	12.5	1	10.0
Other	1	50.0	--	--	1	10.0
Total Number of Drivers	**2**	**100.0**	**8**	**100.0**	**10**	**100.0**

Observations

Half of the drivers involved in casualty collisions with a train disobeyed a traffic control device.

*Based on those cases where driver actions were specified on the collision report form.

Pedestrians

- Pedestrian casualty collisions were more likely to occur in November. March experienced the least number of pedestrian crashes.
- Pedestrian casualty collisions were most likely to occur on Friday and least likely to occur on Sunday.
- Pedestrian casualty collisions were most likely to occur during the evening rush-hour period (3:00-6:59 p.m.).
- 37.6% of the drivers in casualty collisions involving a pedestrian were recorded as failing to yield the right of way to the pedestrian.
- The casualty rate per population was highest for pedestrians between the ages of 15 and 19.
- Of pedestrians involved in injury collisions, 13.0% had consumed alcohol before the collision, compared to 37.5% involved in fatal collisions.
- Of those pedestrians who had consumed alcohol prior to the collision, the highest rate of involvement per 10,000 population was for pedestrians 20-24 years of age.

Table 8.1

Casualty Collisions Involving Pedestrians:

Month of Occurrence

2009

Month of Collision	N	%
January	117	10.0
February	96	8.2
March	74	6.3
April	90	7.7
May	81	6.9
June	86	7.4
July	87	7.4
August	92	7.9
September	117	10.0
October	121	10.4
November	125	10.7
December	83	7.1
Total Number of Collisions	**1169**	**100.0**

Observations

Pedestrian casualty collisions were more likely to occur in November. March experienced the least number of pedestrian crashes.

Table 8.2

Casualty Collisions Involving Pedestrians:

Day of Week

2009

Day of Week	N	%
Monday	148	12.7
Tuesday	187	16.0
Wednesday	170	14.5
Thursday	173	14.8
Friday	212	18.1
Saturday	178	15.2
Sunday	100	8.6
Unspecified	1	0.1
Total Number of Collisions	**1169**	**100.0**

Observations

Pedestrian casualty collisions were most likely to occur on Friday and least likely to occur on Sunday.

Table 8.3

Casualty Collisions Involving Pedestrians:

Time Period

2009

Time Period	N	%
11:00 p.m. - 2:59 a.m.	115	9.8
3:00 a.m. - 6:59 a.m.	47	4.0
7:00 a.m. - 10:59 a.m.	219	18.7
11:00 a.m. - 2:59 p.m.	246	21.0
3:00 p.m. - 6:59 p.m.	353	30.2
7:00 p.m. - 10:59 p.m.	183	15.7
Unspecified	6	0.5
Total Number of Collisions	**1169**	**100.0**

Observations

Pedestrian casualty collisions were most likely to occur during the evening rush-hour period from 3:00 p.m. to 6:59 p.m. These collisions were least likely to occur during the early morning hours (3:00 a.m. to 6:59 a.m.).

Table 8.4

Casualty Collisions Involving Pedestrians:

Location

2009

Location	N	%
Urban	1118	95.6
Rural	51	4.4
Total Number of Collisions	**1169**	**100.0**

Observations

The majority of pedestrian casualty collisions (95.6%) occurred in urban areas. Only 4.4% occurred in rural areas.

Table 8.5

Actions of Drivers Involved in Casualty Collisions with Pedestrians*

2009

Driver Actions	N	%
Driving Properly	342	33.4
Failed to Yield Right of Way To Pedestrian	385	37.6
Backed Unsafely	100	9.8
Followed Too Closely	48	4.7
Ran Off Road	33	3.2
Improper Turn	18	1.8
Disobey Traffic Signal	13	1.3
Left Turn Across Path	11	1.1
Failed to Yield Right of Way - Uncontrolled Intersection	8	0.8
Improper Passing	8	0.8
Stop Sign Violation	6	0.6
Yield Sign Violation	3	0.3
Improper Lane Change	3	0.3
Left of Centre	2	0.2
Other	45	4.4
Total Number of Drivers	**1025**	**100.0**

Observations

33.4% of the drivers involved in pedestrian casualty crashes were recorded as driving properly. However, 37.6% of the drivers involved in pedestrian casualty collisions failed to yield the right of way to the pedestrian.

*Based on those cases where driver actions were specified on the collision report form.

Table 8.6

Age of Pedestrian Casualties

2009

Age in Years	Pedestrians Killed N	Pedestrians Injured N	Total Pedestrian Casualties N	%	Pedestrian Casualty Rate Per 10,000 Population*
Under 5	1	20	21	1.7	0.9
5 - 9	2	40	42	3.5	2.0
10 - 14	--	74	74	6.1	3.3
15 - 19	5	179	184	15.2	7.4
20 - 24	6	156	162	13.4	5.6
25 - 29	2	109	111	9.2	3.6
30 - 34	6	76	82	6.8	2.9
35 - 44	3	134	137	11.3	2.5
45 - 54	1	154	155	12.8	2.7
55 - 64	4	98	102	8.4	2.7
65 and over	5	101	106	8.8	2.8
Unspecified	--	32	32	2.6	
Total Number of Pedestrian Casualties	**35**	**1173**	**1208**	**100.0**	

Observations

The casualty rate per population was highest for pedestrians between the ages of 15 and 19. The lowest casualty rate was recorded for children under 5 years of age.

*Source: Based on estimates of the Alberta population by age groups and sex, July 1, 2009, Statistics Canada

Figure 7

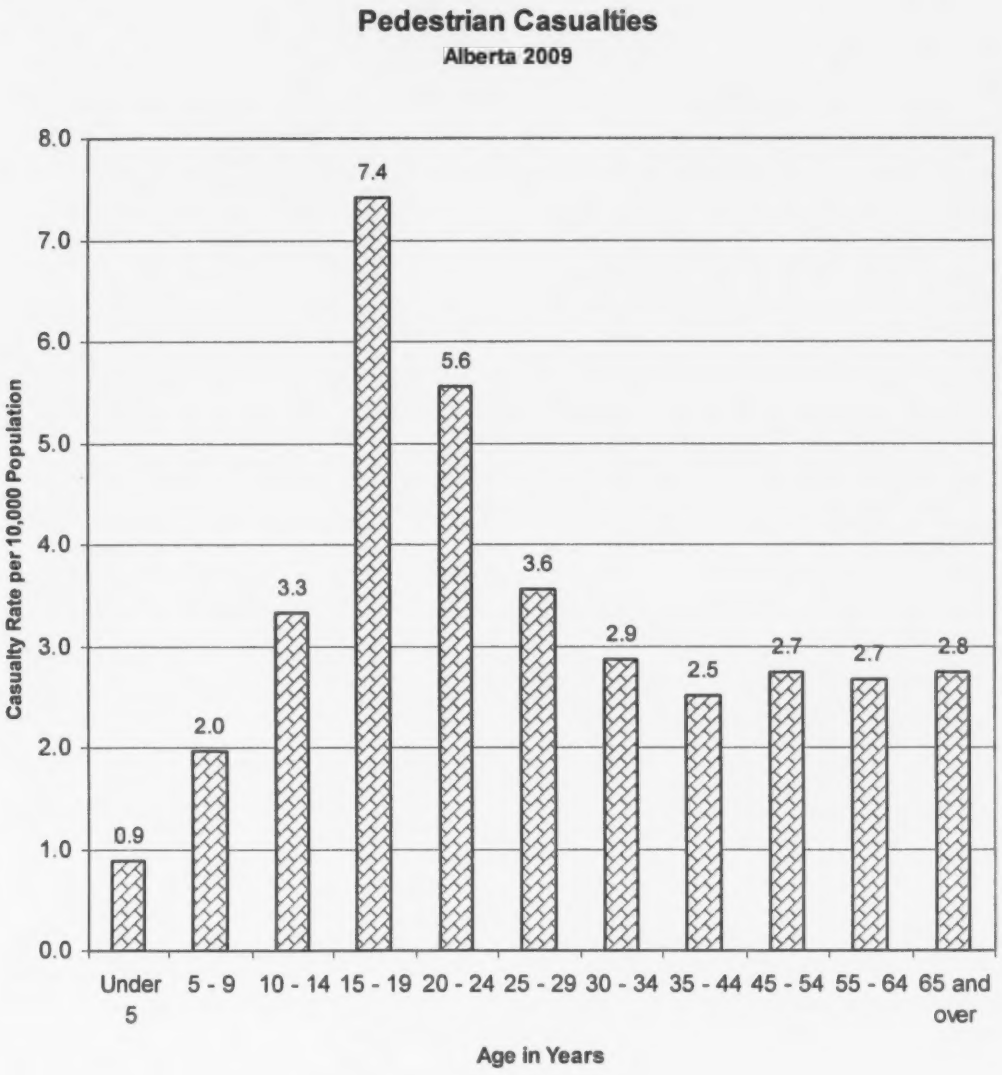

Pedestrian Casualties
Alberta 2009
Casualty Rate per 10,000 Population
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.9
2.0
3.3
7.4
5.6
3.6
2.9
2.5
2.7
2.7
2.8
Under 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years

Table 8.7

Condition of Pedestrians Involved in Casualty Collisions*

2009

Condition of Pedestrian	Pedestrians in Fatal Collisions N	%	Pedestrians in Non-Fatal Injury Collisions N	%	Total Pedestrians in Casualty Collisions N	%
Normal	20	62.5	817	85.4	837	84.6
Had Been Drinking	4	12.5	66	6.9	70	7.1
Alcohol Impaired	8	25.0	58	6.1	66	6.7
Total Alcohol Involvement	**12**	**37.5**	**124**	**13.0**	**136**	**13.8**
Impaired by Drugs	--	--	2	0.2	2	0.2
Other	--	--	14	1.5	14	1.4
Total Number of Pedestrians	**32**	**100.0**	**957**	**100.0**	**989**	**100.0**

Observations

Of pedestrians involved in injury collisions, 13.0% had consumed alcohol before the collision, compared to 37.5% involved in fatal collisions. As the severity of the collision increased, the involvement of alcohol increased.

*Based only on those cases where pedestrian condition was specified on the collision report form.

Table 8.8

Age of Drinking Pedestrians Involved in Casualty Collisions*

2009

Age in Years	N	%	Rate per 10,000 Population**
Under 10	--	--	--
10 - 14	--	--	--
15 - 19	20	14.7	0.8
20 - 24	27	19.9	0.9
25 - 29	17	12.5	0.5
30 - 34	14	10.3	0.5
35 - 44	17	12.5	0.3
45 - 54	25	18.4	0.4
55 - 64	9	6.6	0.2
65 and over	2	1.5	0.1
Unspecified	5	3.7	
Total Number of Pedestrian Casualties	**136**	**100.0**	

Observations

Of those pedestrians who had consumed alcohol prior to the collision, the highest rate of involvement per 10,000 population was for pedestrians 20 - 24 years of age.

*Based on those cases where pedestrian condition was specified on the collision report form.

**Source: Based on estimates of the Alberta population by age groups and sex, July 1, 2009, Statistics Canada.

Bicyclists

- Casualty collisions involving bicycles were more likely to occur in the month of September.
- Weekdays experienced the most casualty collisions involving bicycles. As well, the largest number of these crashes (35.2%) occurred during the evening rush-hour period.
- Young bicyclists, 10-14 years of age had the highest casualty rate per 10,000 population.
- Compared to operators of all vehicles in casualty collisions, bicyclists were more likely to disobey a traffic signal or fail to yield right-of-way at an uncontrolled intersection.
- 5.7% of bicyclists involved in casualty collisions had consumed alcohol before the crash.

Table 9.1

Casualty Collisions Involving Bicycles:

Month of Occurrence

2009

Month of Collision	N	%
January	4	0.7
February	4	0.7
March	8	1.5
April	26	4.9
May	73	13.7
June	86	16.1
July	71	13.3
August	95	17.8
September	102	19.1
October	33	6.2
November	30	5.6
December	2	0.4
Total Number of Collisions	**534**	**100.0**

Observations

The highest number of casualty crashes involving bicycles occurred during the month of September.

Table 9.2

Casualty Collisions Involving Bicycles:

Day of Week

2009

Day of Week	N	%
Monday	80	15.0
Tuesday	75	14.0
Wednesday	93	17.4
Thursday	92	17.2
Friday	90	16.9
Saturday	58	10.9
Sunday	46	8.6
Total Number of Collisions	**534**	**100.0**

Observations

Casualty collisions involving bicycles were most likely to occur on weekdays.

Table 9.3

Casualty Collisions Involving Bicycles:

Time Period

2009

Time Period	N	%
11:00 p.m. - 2:59 a.m.	20	3.7
3:00 a.m. - 6:59 a.m.	12	2.2
7:00 a.m. - 10:59 a.m.	107	20.0
11:00 a.m. - 2:59 p.m.	121	22.7
3:00 p.m. - 6:59 p.m.	188	35.2
7:00 p.m. - 10:59 p.m.	84	15.7
Unspecified	2	0.4
Total Number of Collisions	**534**	**100.0**

Observations

The largest proportion of casualty crashes (35.2%) involving bicycles occurred during the evening rush-hour period of 3:00 p.m. - 6:59 p.m.

Table 9.4

Age of Bicycle Casualties

2009

Age in Years	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Total Bicyclist Casualties N	Total Bicyclist Casualties %	Casualty Rate Per 10,000 Population*
Under 5	--	--	4	0.7	4	0.7	0.2
5-9	--	--	33	6.2	33	6.1	1.5
10-14	--	--	81	15.1	81	15.1	3.6
15-19	--	--	81	15.1	81	15.1	3.3
20-24	--	--	66	12.3	66	12.3	2.3
25-29	--	--	56	10.5	56	10.4	1.8
30-34	--	--	39	7.3	39	7.3	1.4
35-44	1	50.0	62	11.6	63	11.7	1.2
45-54	--	--	67	12.5	67	12.5	1.2
55-64	1	50.0	20	3.7	21	3.9	0.5
65 and over	--	--	14	2.6	14	2.6	0.4
Unspecified	--	--	12	2.2	12	2.2	
Total Casualties	**2**	**100.0**	**535**	**100.0**	**537**	**100.0**	

Observations

Casualty rates per 10,000 population were highest for persons between the ages of 10 and 14. The lowest casualty rates were recorded for children under 5 years of age and adults aged 55 and older.

*Based on estimates of the Alberta population by age groups and sex, July 1, 2009, Statistics Canada

Table 9.5

Improper Actions of Bicyclists Involved in Casualty Collisions

2009

Improper Actions of Bicyclists	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Disobey Traffic Signal	37	15.9	7.2
Failed to Yield Right of Way - Uncontrolled Intersection	28	12.1	1.8
Stop Sign Violation	12	5.2	7.4
Left of Centre	11	4.7	3.5
Left Turn Across Path	11	4.7	12.1
Improper Passing	8	3.4	1.3
Improper Lane Change	5	2.2	3.0
Improper Turn	5	2.2	3.4
Yield Sign Violation	4	1.7	2.0
Ran Off Road	4	1.7	15.4
Followed Too Closely	4	1.7	31.4
Failed to Yield Right of Way to Pedestrian	1	0.4	4.1
Other	102	44.0	4.8
Total Number of Bicyclists	**232**	**100.0**	

Observations

Compared to operators of all vehicles in casualty collisions, bicyclists were more likely to disobey a traffic signal or fail to yield right-of-way at an uncontrolled intersection.

*Based on those cases where driver actions were specified on the collision report form.

Note: There was a total of 385 bicyclists involved in casualty collisions for which a driver action was specified on the collision report form. 153 were indicated as driving properly at the time of the collision.

Table 9.6

Condition of Bicyclists Involved in Casualty Collisions*

2009

Condition of Bicyclist	N	%
Normal	412	94.1
Had Been Drinking	14	3.2
Alcohol Impaired	11	2.5
Total Alcohol Involvement	**25**	**5.7**
Other	1	0.2
Total Number of Bicyclists	**438**	**100.0**

Observations

5.7% of bicyclists involved in casualty collisions had consumed alcohol before the crash.

*Based only on those cases where bicyclist condition was specified on the collision report form.

Traffic Safety Issues

Alcohol Involvement

- A total of 5.0% of drivers involved in injury crashes were judged to have consumed alcohol prior to the crash, compared to 21.1% of drivers involved in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased.
- In terms of involvement per 1,000 licensed drivers, males between 18 and 24 years of age were most likely to have been drinking before the crash. There were more than four times as many male drivers as female drivers who had consumed alcohol prior to the collision.
- In 2009, alcohol related casualty crashes were most likely to have occurred in August, on Saturday, and between 11:00 p.m. and 2:59 a.m.
- Figure 8 provides a graphic representation of the involvement of drinking drivers in casualty collisions over the past five years, 2005 - 2009.

Table 10.1

Condition of Drivers in Casualty Collisions*

2009

Condition of Driver	Drivers in Fatal Collisions N	%	Drivers in Non-Fatal Injury Collisions N	%	Total Drivers in Casualty Collisions N	%
Normal	345	75.8	18524	93.3	18869	92.9
Had Been Drinking	27	5.9	445	2.2	472	2.3
Alcohol Impaired	69	15.2	544	2.7	613	3.0
Total Alcohol Involvement	**96**	**21.1**	**989**	**5.0**	**1085**	**5.3**
Impaired by Drugs	6	1.3	29	0.1	35	0.2
Fatigued/Asleep	5	1.1	159	0.8	164	0.8
Other	3	0.7	160	0.8	163	0.8
Total Number of Drivers	**455**	**100.0**	**19861**	**100.0**	**20316**	**100.0**

Observations

Of drivers involved in injury collisions, 5.0% had consumed alcohol before the crash, compared to 21.1% in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased. Overall, 5.3% of drivers involved in casualty collisions were judged to have consumed alcohol before the crash.

*Based on those cases where driver condition was specified on the collision report form. These numbers do not include bicyclists (see Table 9.6, page 65).

Figure 8

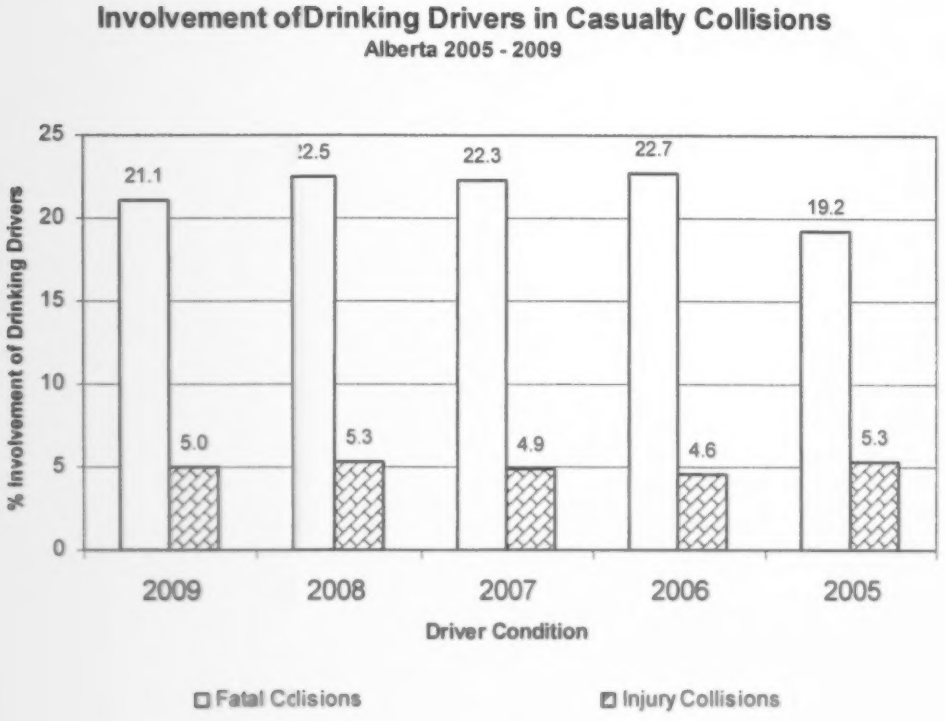

Involvement ofDrinking Drivers in Casualty Collisions
Alberta 2005 - 2009
% Involvement of Drinking Drivers
25
20
15
10
5
0
21.1
5.0
12.5
5.3
22.3
4.9
22.7
4.6
19.2
5.3
2009
2008
2007
2006
2005
Driver Condition
Fatal Collisions
Injury Collisions

Figure 9

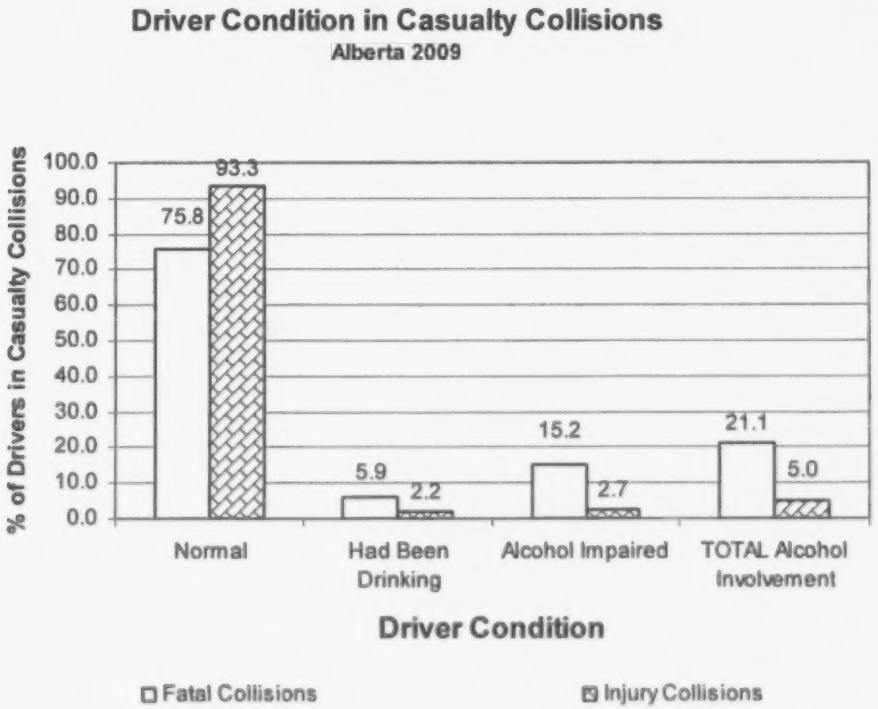

Driver Condition in Casualty Collisions
Alberta 2009
% of Drivers in Casualty Collisions
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
75.8
93.3
5.9
2.2
15.2
2.7
21.1
5.0
Normal
Had Been Drinking
Alcohol Impaired
TOTAL Alcohol Involvement
Driver Condition
Fatal Collisions
Injury Collisions

Table 10.2

Age and Sex of Drinking Drivers in Casualty Collisions*

2009

	Male		Rate Per 1,000** Licensed Drivers	Female		Rate Per 1,000** Licensed Drivers	Total*		Rate Per 1,000** Licensed Drivers
Age in Years	**N**	**%**		**N**	**%**		**N**	**%**	
Under 16	1	0.1	0.1	2	0.2	0.2	3	0.3	0.1
16 - 17	24	2.2	0.8	15	1.4	0.5	39	3.6	0.7
18 - 19	66	6.1	1.6	16	1.5	0.4	82	7.6	1.1
20 - 21	76	7.0	1.6	20	1.8	0.5	96	8.8	1.1
22 - 24	104	9.6	1.2	29	2.7	0.4	133	12.3	0.8
25 - 29	151	13.9	1.0	30	2.8	0.2	182	16.8	0.6
30 - 34	100	9.2	0.7	20	1.8	0.2	120	11.1	0.4
35 - 44	155	14.3	0.6	40	3.7	0.2	195	18.0	0.4
45 - 54	129	11.9	0.4	20	1.8	0.1	149	13.7	0.3
55 - 64	38	3.5	0.2	7	0.6	0.0	45	4.1	0.1
65 and over	20	1.8	0.1	2	0.2	0.0	22	2.0	0.1
Unspecified	3	0.3		--	--		19	1.8	
Total Drivers	**867**	**79.9**		**201**	**18.5**		**1085**	**100.0**	

Observations

Of those collision-involved drivers who had consumed alcohol, there were over four times as many male drivers as female drivers. In terms of involvement per 1,000 licensed drivers, males 18-24 years of age were more likely to have consumed alcohol prior to a casualty collision than any other age group.

Drinking drivers include those indicated on the collision report form as having been drinking prior to the crash and those who were alcohol-impaired at the time of the crash. Whether or not the driver was actually charged is not taken into consideration by the collision report form.

*Includes only drivers whose age and/or sex was specified on the collision report form. Total includes drinking drivers whose sex was not specified on the collision report form.

**Source: Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2009.

Figure 10

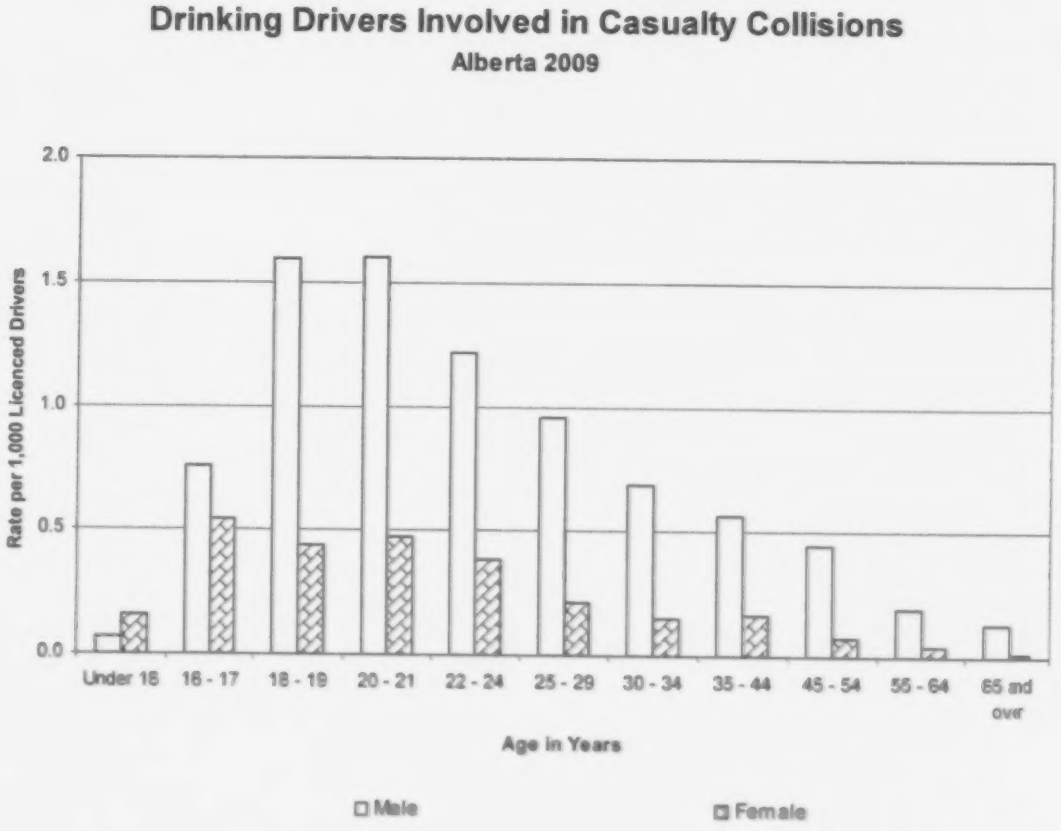

Drinking Drivers Involved in Casualty Collisions
Alberta 2009
Rate per 1,000 Licenced Drivers
2.0
1.5
1.0
0.5
0.0
Under 16
16 - 17
18 - 19
20 - 21
22 - 24
25 - 29
30 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years
Male
Female

Table 10.3

Alcohol-Involved Casualty Collisions:

Month of Occurrence

2009

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
January	1	1.1	69	7.0	70	6.5
February	6	6.5	79	8.0	85	7.9
March	8	8.6	69	7.0	77	7.2
April	5	5.4	71	7.2	76	7.1
May	9	9.7	103	10.5	112	10.4
June	12	12.9	90	9.2	102	9.5
July	18	19.4	75	7.6	93	8.6
August	10	10.8	115	11.7	125	11.6
September	12	12.9	93	9.5	105	9.8
October	6	6.5	91	9.3	97	9.0
November	4	4.3	76	7.7	80	7.4
December	2	2.2	52	5.3	54	5.0
Total Number of Collisions	**93**	**100.0**	**983**	**100.0**	**1076**	**100.0**

Observations

The month of August accounted for the largest proportion of alcohol-involved casualty collisions. The month of December accounted for the smallest proportion of alcohol-involved casualty collisions.

Table 10.4

Alcohol-Involved Casualty Collisions:

Day of Week

2009

Day of Week	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Monday	12	12.9	99	10.1	111	10.3
Tuesday	5	5.4	83	8.4	88	8.2
Wednesday	10	10.8	108	11.0	118	11.0
Thursday	9	9.7	99	10.1	108	10.0
Friday	17	18.3	160	16.3	177	16.4
Saturday	27	29.0	243	24.7	270	25.1
Sunday	13	14.0	191	19.4	204	19.0
Total Number of Collisions	**93**	**100.0**	**983**	**100.0**	**1076**	**100.0**

Observations

The highest number of alcohol-involved fatal collisions and non-fatal injury collisions occurred on Saturday (29.0% and 24.7% respectively). The smallest number of alcohol-involved casualty collisions occurred on Tuesday (8.2%).

Table 10.5

Alcohol-Involved Casualty Collisions:

Time Period

2009

Time Period	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
11:00 p.m. - 2:59 a.m.	30	32.3	348	35.4	378	35.1
3:00 a.m. - 6:59 a.m.	6	6.5	124	12.6	130	12.1
7:00 a.m. - 10:59 a.m.	7	7.5	44	4.5	51	4.7
11:00 a.m. - 2:59 p.m.	10	10.8	52	5.3	62	5.8
3:00 p.m. - 6:59 p.m.	13	14.0	152	15.5	165	15.3
7:00 p.m. - 10:59 p.m.	25	26.9	248	25.2	273	25.4
Unspecified	2	2.2	15	1.5	17	1.6
Total Number of Collisions	**93**	**100.0**	**983**	**100.0**	**1076**	**100.0**

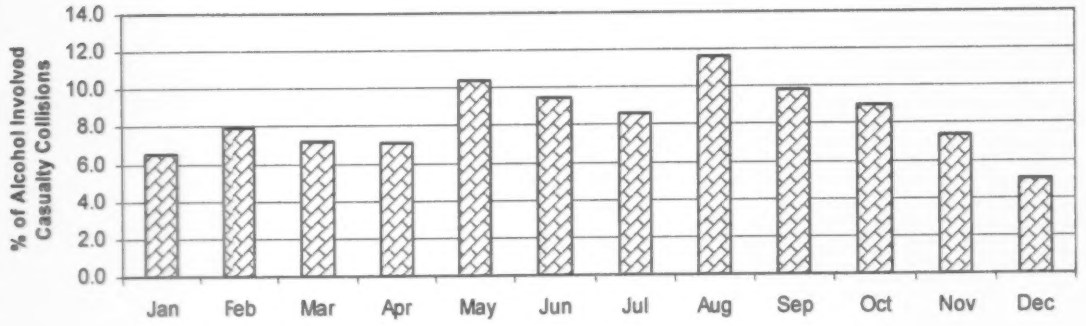
Observations

The late night/early morning time period (11:00 p.m. – 2:59 a.m.) was most likely to record alcohol-involved casualty collisions (35.1%). The morning hours (7:00 a.m. – 10:59 a.m.) were least likely to record alcohol-involved casualty crashes (4.7%).

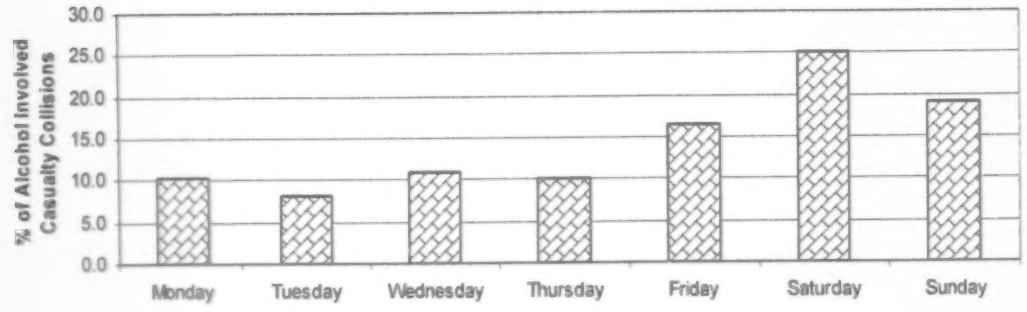
Figure 11

Alcohol-Involved Casualty Collisions
Alberta 2009

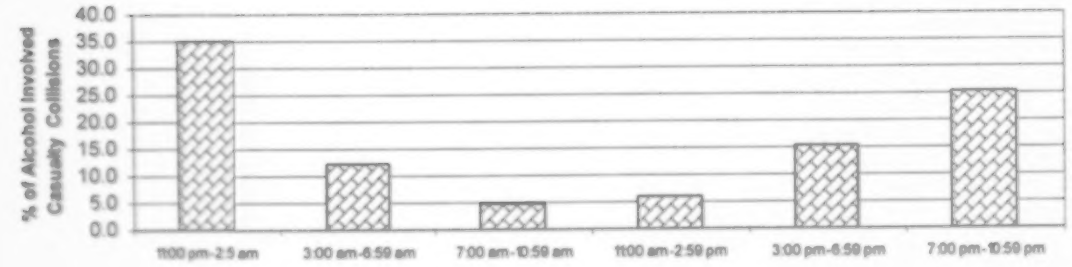
By Month of Occurrence



By Day of Week



By Time Period



Traffic Safety Issues

Restraint Use

- Collision-involved restraint users had a much lower injury rate (7.0%) than those not using restraints (31.7%).
- Occupants using a restraint reduce the likelihood of sustaining an injury and the severity of injury decreases.

Table 10.6

Restraint Use of Vehicle Occupants and Injury Severity* (Use versus Non-Use)

2009

Injury Severity of Occupants	Percentage of Occupants Using Restraints %	Percentage of Occupants Not Using Restraints %
Fatal Injury	0.1	3.6
Major Injury	0.8	9.7
Minor Injury	6.1	18.4
Total Occupants Sustaining Injuries	**7.0**	**31.7**
No Apparent Injury	93.0	68.3
Total Occupants	**100.0**	**100.0**

Observations

Collision involved restraint users had a much lower injury rate (7.0%) than those not using restraints (31.7%). This table illustrates the moderating effect of seat belt use on injury severity. Occupants using a restraint reduce the likelihood of sustaining an injury and the severity of injury decreases.

Injury Severity

Fatal – A fatal injury is the death of a person that occurs as a result of a motor vehicle collision within 30 days of the collision.

Major – Persons with injuries or complaint of pain that went to the hospital and were subsequently admitted even if for observation only.

Minor – Persons with injuries or complaint of pain that went to the hospital, were treated in emergency (or refused treatment) and SENT HOME without ever being admitted to the hospital. (Also includes persons who indicated they intend to seek medical attention.)

*Based on those cases where occupant restraint use and injury severity were specified on the collision report form.